AMENDMENTS TO THE CLAIMS

In response to Final Office Action, please amend the above-identified patent application as follows:

In the Claims

Claims 1, 3-7, 11-16, 20-25, 42, 44-48, and 52-57 have been cancelled without prejudice, and claims 8, 17, 26, 49, and 58 have been amended as follows:

Claims 1-7. (cancelled)

Claim 8. (currently amended): ~~The circuitry of claim 7~~A first-arriving pulse detector circuitry, comprising:

a correlator circuitry configured to correlate a received signal with a template signal to provide an output signal, in which the received signal comprises an ultra-wideband signal, wherein the received signal comprises a plurality of pulses that result from a transmission of a radio-frequency pulse into a multipath propagation medium, and wherein the plurality of pulses of the received signal comprises the first-arriving pulse, in which the correlator circuitry further comprises:

a multiplier circuitry configured to provide an output signal that comprises the product of the template signal and the received signal; and

an integrator circuitry configured to integrate the output signal of the multiplier circuitry to provide the output signal of the correlator circuitry; and

a threshold circuitry configured to, in response to the first-arriving signal in the received signal, provide a first-arriving-pulse signal depending on the relative values of the output signal of the correlator circuitry and a threshold signal derived from a noise floor, in which the threshold circuitry further comprises a comparator circuitry configured to compare the output signal of the correlator circuitry with the threshold signal to provide the first-arriving-pulse signal, in which the first-arriving-pulse signal tends to indicate a time position of the first-arriving pulse in the received signal, in which the threshold signal comprises a first number added to the product of a second

number and a third number, in which the first number comprises the average of the noise floor, the second number comprises the standard deviation of the noise floor, and the third number comprises a scaling factor.

Claim 9. (original): The circuitry of claim 8, in which the template signal comprises a limited-size template signal.

Claim 10. (original): The circuitry of claim 8, in which the template signal comprises a discrete-time signal.

Claim 11-16. (cancelled)

Claim 17. (currently amended): ~~The circuitry of claim 16~~A radio-frequency (RF) apparatus, comprising:

a radio-frequency circuitry configured to operate on a received signal, wherein the received signal comprises a plurality of pulses that result from a transmission of a radio-frequency pulse in a multipath propagation medium, in which the radio-frequency pulse transmitted in the multipath propagation medium comprises an ultra-wideband signal, and wherein the plurality of pulses of the received signal comprises a first-arriving pulse; and

a detector circuitry configured to discriminate from a noise floor the first-arriving pulse of the received signal, in which the detector circuitry further comprises a correlator circuitry configured to correlate the received signal with a template signal to provide an output signal, in which the detector circuitry further comprises a threshold circuitry configured to provide a first-arriving-pulse signal by comparing the output signal of the correlator circuitry to a threshold signal, wherein the first-arriving-pulse signal tends to indicate a time position of the first-arriving pulse in the received signal, in which the threshold signal comprises a first number added to the product of a second number and a third number, in which the first number comprises the average of the

noise floor, the second number comprises the standard deviation of the noise floor, and the third number comprises a scaling factor.

Claim 18. (original): The circuitry of claim 17, in which the template signal comprises a limited-size template signal.

Claim 19. (original): The circuitry of claim 17, in which the template signal comprises a discrete-time signal.

Claims 20-25 (cancelled)

Claim 26. (currently amended): ~~The system of claim 25~~A communication system, comprising:

a transmitter circuitry configured to transmit a radio-frequency pulse into a multipath propagation medium, in which the radio-frequency pulse transmitted in the multipath propagation medium comprises an ultra-wideband signal;

a receiver circuitry configured to operate on a received signal, wherein the received signal comprises a plurality of pulses that result from the transmission of the pulse into the multipath propagation medium, and wherein the plurality of pulses of the received signal comprises a first-arriving pulse, in which the receiver circuitry comprises a scanning receiver circuitry; and

a detector circuitry configured to discriminate from a noise floor the first-arriving pulse of the received signal, in which the detector circuitry further comprises a correlator circuitry configured to correlate the received signal with a template signal to provide an output signal, in which the detector circuitry further comprises a threshold circuitry configured to provide the first-arriving-pulse signal by comparing the output signal of the correlator circuitry to a threshold signal, in which the threshold signal comprises a first number added to the product of a second number and a third number, in which the first number comprises the average of the noise floor, the second number comprises the standard deviation of the noise floor, and the third number comprises a scaling factor.

Claim 27. (original): The system of claim 26, wherein the first-arriving-pulse signal tends to indicate a time position of the first-arriving pulse in the received signal.

Claim 28. (original): The system of claim 27, in which the transmitter circuitry, the receiver circuitry, and the detector circuitry reside within a radar circuitry.

Claim 29. (original): The system of claim 28, in which the receiver circuitry couples to a processor circuitry.

Claim 30. (original): The system of claim 29, in which the detector circuitry resides within the processor circuitry.

Claim 31. (original): The system of claim 28, in which the detector circuitry resides within the receiver circuitry.

Claim 32. (original): The system of claim 27, in which the detector circuitry resides within a processor coupled to the receiver circuitry.

Claim 33. (original): The system of claim 27, in which the detector circuitry resides within the receiver circuitry.

Claim 34. (original): The system of claim 33, in which the receiver circuitry couples to a processor circuitry.

Claim 35. (original): The system of claim 27, in which the detector circuitry resides within a first transceiver circuitry.

Claim 36. (original): The system of claim 35, in which the receiver circuitry resides within the first transceiver circuitry.

Claim 37. (original): The system of claim 36, in which the detector circuitry resides within the first transceiver circuitry.

Claim 38. (original): The system of claim 37, in which the transmitter circuitry resides within a second transceiver circuitry.

Claim 39. (original): The system of claim 38, in which the receiver circuitry couples to a processor circuitry.

Claim 40. (original): The system of claim 39, in which the detector circuitry resides within the processor circuitry.

Claim 41. (original): The system of claim 40, in which the detector circuitry resides within the receiver circuitry.

Claims 42-48 (cancelled)

Claim 49. (currently amended): ~~The method of claim 48~~A method of detecting a first-arriving pulse, comprising:

correlating a received signal with a template signal to provide a correlation output signal, in which the received signal comprises an ultra-wideband signal, in which correlating the received signal and the template signal further comprises:

multiplying the template signal and the received signal to provide a product signal; and

integrating the product output signal to provide the correlation output signal,

wherein the received signal comprises a plurality of pulses that result from a transmission of a radio-frequency pulse into a multipath propagation medium, and wherein the plurality of pulses of the received signal comprises a first-arriving pulse; and

comparing the correlation output signal and a threshold signal to provide a first-arriving-pulse signal, wherein the threshold signal is derived from a noise floor, in which comparing the correlation output signal and a threshold signal further comprises using a comparator circuitry configured to compare the correlation output signal and the threshold signal to provide the first-arriving-pulse signal, in which the first-arriving-pulse signal tends to indicate a time position of the first-arriving pulse in the received signal, in which the threshold signal comprises a first number added to the product of a second number and a third number, in which the first number comprises the average of the noise floor, the second number comprises the standard deviation of the noise floor, and the third number comprises a scaling factor.

Claim 50. (original): The method of claim 49, in which the template signal comprises a limited-size signal.

Claim 51. (original): The method of claim 49, in which the template signal comprises a discrete-time signal.

Claims 52-57. (cancelled)

Claim 58. (currently amended): ~~The method of claim 57~~A method of detecting a first-arriving pulse of a received signal, comprising:

transmitting a radio-frequency pulse in a multipath propagation medium, in which the radio-frequency pulse transmitted in the multipath propagation medium comprises an ultra-wideband signal;

receiving, by using a radio-frequency circuitry, the received signal, wherein the received signal comprises a plurality of pulses that result from the transmission of the radio-frequency pulse into the multipath propagation medium, and wherein the plurality of pulses of the received signal comprises a first-arriving pulse; and

discriminating from a noise floor the first-arriving pulse of the received signal by using a detector circuitry, in which using the detector circuitry further comprises correlating

the received signal with a template signal to provide a correlation output signal, which further comprises including within the detector circuitry a threshold circuitry configured to provide a first-arriving-pulse signal by comparing the correlation output signal to a threshold signal, which further comprises using the detector circuitry to provide the first-arriving-pulse signal, wherein the first-arriving pulse signal tends to indicate a time position of the first-arriving pulse of the received signal, in which the threshold signal comprises a first number added to the product of a second number and a third number, in which the first number comprises the average of the noise floor, the second number comprises the standard deviation of the noise floor, and the third number comprises a scaling factor.

Claim 59. (original): The method of claim 58, in which the template signal comprises a limited-size signal.

Claim 60. (original): The method of claim 58, in which the template signal comprises a discrete-time signal.